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A.D. 1897. April 17. N° 9746.
BOULT'S Complete Specification. (1 SHEET)

Fig. 1.

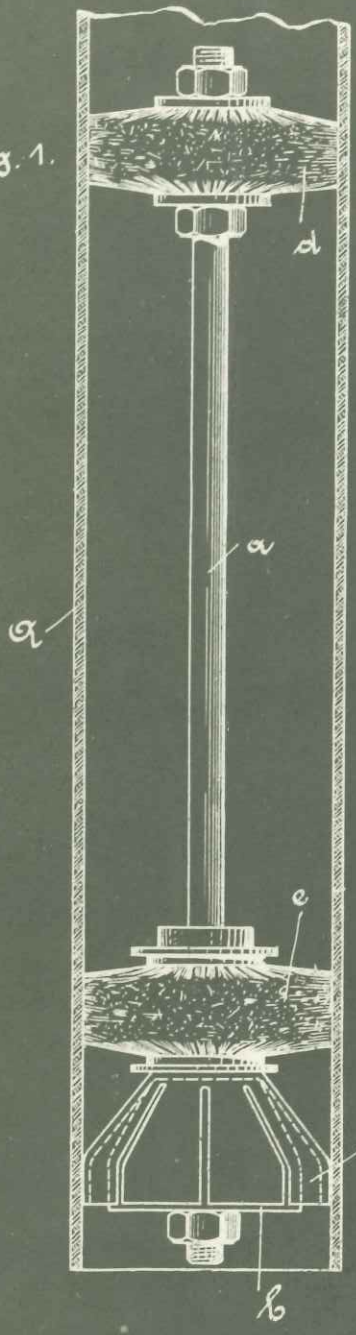


Fig. 2.

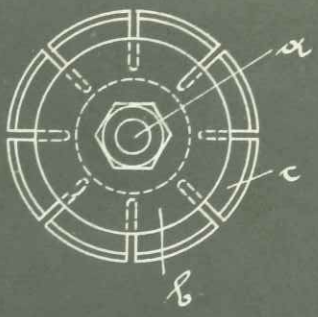
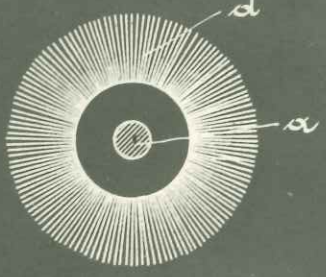


Fig. 3.



[This Drawing is a reproduction of the Original on a reduced scale]

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London: Printed by Darling and Son Ld.
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N° 9746 A.D. 1897

Date of Application, 17th Apr., 1897—Accepted, 12th June, 1897

COMPLETE SPECIFICATION.

Improvements in or relating to the Manufacture of Flexible Hose or Tubing.

A communication from H. W. WARMUTH, of 3 Plauenschestrasse, Dresden-Loebtan, in the Empire of Germany, Manufacturer.

I, ALFRED JULIUS BOULT, of 111 Hatton Garden, in the County of Middlesex, Chartered Patent Agent, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to a process and apparatus for covering the inside of flexible hose or tubing with rubber, in which a springy or elastic piston, operated by compressed air, effects a uniform spreading and distributing of liquid rubber or rubber solution on the inner surface of the tubing.

The tubing is strongly stretched throughout its length so that it may readily assume its natural rounded form both ends of the tubing of course remaining open.

The coating of the inner surface of the tubing is effected in the following manner.

A short cylinder is charged with rubber in a liquid form and in it is placed the piston which effects the spreading and consists of two disc-like or circular brushes or spreaders and behind the second brush a springy cup and a rigid disc both being secured on a rod at a certain distance apart. This piston is placed in the cylinder so that the liquid rubber fills up the space between the two brushes.

The end of the short cylinder constructed in the above manner is held against or just introduced into the end of the stretched tubing and the piston is pushed directly into the latter till its end is flush with the end of the tubing.

The piston is then caused to travel along through the tubing by means of the application of compressed air supplied through a tube placed in the interior of the pipe to be coated behind the piston. In its passage the piston gives off to the walls of the tubing a quantity of rubber which is pressed by the rear brush and by the compressed air into the pores of the fabric constituting the tubing. The air cannot pass through the piston on account of the space between the brushes being completely filled with liquid rubber. Although during the passage a certain quantity of rubber is left on the walls of the tubing, the excess of rubber remaining at the end of the operation between the brushes offers sufficient resistance to prevent air from passing through the piston.

The pressure of air behind the piston forces the liquid mass into all the pores and all uneven places of the tubing, so that when, after having coated it with rubber, the pipe is vulcanized, all porous recesses disappear.

The apparatus for the application of the hereinbefore described process is represented in the accompanying drawing, in which,

Figure 1 is a plan.

Figure 2 a side elevation, and

Figure 3 a cross section of the brush piston and its parts.

The apparatus consists chiefly of a rigid disc *b* fixed on the piston-rod *a* and receiving the air-pressure and a cup *c* with a springy or elastic wall having oblique cuts in its edges which smooths and presses upon the rubber spread on the tubing so as to completely fill all recesses and inequalities in the fabric.

[*Price* 8*d*.]

Boult's Improvements in or relating to the Manufacture of Flexible Hose or Tubing.

The parts *b* and *c* are arranged close together. There are besides on the piston rod two disc-like brushes or spreaders *d* and *e* effecting the spreading on the inner surface of the tubing A of the liquid rubber placed between said brushes and round the piston-rod said mass at the same time rendering the piston air-tight.

Having now particularly described and ascertained the nature of the said invention as communicated to me by foreign correspondent and in what manner the same is to be performed I declare that what I claim is ;—

1. The method of coating the inner surface of hose-pipe or tubing with rubber consisting in placing liquid rubber between two disc-like brushes connected together at a distance apart by means of a rod said brushes being forced through the tubing by means of compressed air whereby part of the rubber adheres to the inner surface of the tubing and becomes pressed into its pores of the fabric by the compressed air substantially as described.

2. Apparatus for use in the process described consisting of two disc-like or circular brushes between which liquid rubber is confined the brushes being connected together by means of a rod the latter being provided at its rear end with a rigid disc and a spring cup substantially as and for the purposes described.

3. The combination and arrangement of parts constituting the complete apparatus for use in coating the inner surface of hose pipe or tubing with rubber substantially as described and illustrated in the accompanying drawings.

Dated this 10th day of April 1897.

BOULT & WADE,
Agents for the Applicant.

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